

Homework questions?
factoring trinomials

Steps $ax^2 + bx + c$ General formula

- 1) multiply $a \times c = \#$
- 2) Do your table
- 3) find Two Factors that the sum = b
- 4) Write the middle terms as sum
- 5) Group then factor out G.C.F
- 6) Write as multiple of binomial.

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Thinking about factors and sums...

If mult to a positive number, signs are same.
(Both + or both -)

$(+)(+) = (+)$
 $(-)(-) = (+)$

k: +24	sum
1, 24	25
2, 12	14
3, 8	11
4, 6	10
-1, -24	-25
-2, -12	-14
-3, -8	-11
-4, -6	-10

+8	Sum
1, 8	9
2, 4	6
-1, -8	-9
-2, -4	-6

-8	
-1(8)	7
-2(4)	2
1(-8)	-7
2(-4)	-2

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-24	sum
1, -24	-23
2, -12	-10
3, -8	-5
4, -6	-2
-1, 24	23
-2, 12	10
-3, 8	5
-4, 6	2

If product is negative, then one factor is + and one is -

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Factoring Trinomials

Standard Form: $ax^2 + bx + c$

1) $a=5, b=17, c=6$
 $5x^2 + 17x + 6$
 $5x^2 + 2x + 15x + 6$
 $x(5x+2) + 3(5x+2)$
 $(5x+2)(x+3)$

2) $a=2, b=5, c=-12$
 $2x^2 + 5x - 12$
 $2x^2 + 8x - 3x - 12$
 $2x(x+4) - 3(x+4)$
 $(x+4)(2x-3)$

prod: $ac = 5(6) = 30$
 sum: $b = 17$

30	sum = 17
1, 30	31
2, 15	17
3, 10	13
5, 6	11

prod: $ac = 2(-12) = -24$
 sum: $b = 5$

-24	Sum
-1, 24	23
-3, 8	5
-2, 12	10

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2) $a=2, b=5, c=-12$
 $2x^2 + 5x - 12$
 $2x^2 - 3x + 8x - 12$
 $x(2x-3) + 4(2x-3)$
 $(2x-3)(x+4) = 0$
 $0 \times 0 = 0$
 $2x-3=0$
 $2x=3$
 $x=\frac{3}{2}$
 $x+4=0$
 $x=-4$

Probola

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3) $a=1, b=-14, c=45$
 $x^2 - 14x + 45$
 $x^2 - 5x - 9x + 45$
 $x(x-5) - 9(x-5)$
 $(x-5)(x-9)$

4) $x^2 + 13x + 42$

prod: $ac = 1(-14) = -14$
 sum: $b = -14$

45	sum = -14
-1, 45	-46
-3, 15	-18
-5, 9	-14

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4) $x^2 + 13x + 42$ $a=1$ $b=13$ $c=42$
 $\text{prod} = 1 \cdot 42 = 42$
 $\text{sum} = 13$
 $x^2 + 6x + 7x + 42$
 $x(x+6) + 7(x+6)$
 $(x+6)(x+7)$

prod = 42	sum = 13
1, 42	43
2, 21	23
3, 14	17
6, 7	13

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5) $8x^2 + 27x + 9$ $\text{prod} = 8 \cdot 9 = 72$
 $\text{sum} = 27$
 $8x^2 + 3x + 24x + 9$
 $x(8x+3) + 3(8x+3)$
 $(8x+3)(x+3)$

prod = 72	sum = 27
1, 72	73
2, 36	37
3, 24	27

6) $-2x^2 + 7x - 3$

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6) $-2x^2 + 7x - 3$ $a=-2$ $b=7$ $c=-3$
 $\text{prod} = (-2)(-3) = 6$
 $\text{sum} = 7$
 $-2x^2 + x + 6x - 3$
 $-x(2x-1) + 3(2x-1)$
 $(2x-1)(-x+3)$
 $-2x^2 + 6x + x - 3$
 $-2x^2 + 7x - 3$

prod = 6	sum = 7
1, 6	7
2, 3	5

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7) $x^2 - 4x - 12$

8) $x^2 - 5x - 24$

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9) $-4x^2 + 11x + 20$

10) $6x^2 - 23x + 7$

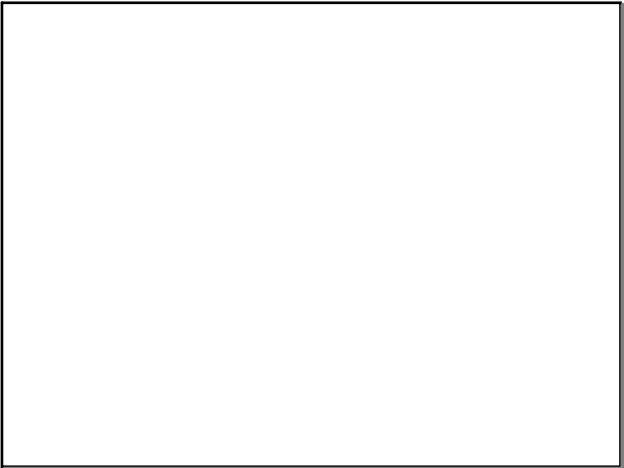
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Remember:

If not factorable - WRITE PRIME!

Check yourself by FOIL!

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